

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1(First Time Amended). A method of producing a ~~nano-scale~~nano sized sensor comprising the steps of:

(a) depositing a first metal ~~nano-strip~~ nano sized strip on an electrical insulator substrate by ~~means of~~ a FIB (Focused Ion Beam) deposition process; ~~and,~~

(b) depositing a second metal ~~nano-strip~~ nano sized strip on the same said substrate by ~~means of~~ said FIB process in a partially overlapping ~~fashion~~ portion on said first metal ~~nano-strip~~ nano sized strip ~~to provide a sensing junction as said overlap, the~~ second metal nano sized strip being formed of a different metal material from the first metal nano sized strip; and

(c) forming a bi-metal sensing junction from the partially overlapping portion between the first metal nano sized strip and the second metal nano sized strip.

Claim 2(Canceled).

Claim 3(First Time Amended). The method of claim 1 wherein one of the said first metal nano-strips nano sized strip and the second metal nano sized strip is include at least one of: W(tungsten), and another of said first metal nano sized strip and the second metal nano sized strip is Pt(platinum).

Claim 4(Canceled).

Claim 5(Canceled)

Claim 6(Canceled).

Claim 7(Canceled).

Claim 8(Canceled).

Claim 9(Canceled).

Claim 10(Canceled).

Claim 11(Canceled).

Claim 12(Canceled).

Claim 13(Canceled).

Claim 14(Canceled).

Claim 15(New). The method of claim 1, wherein the forming step includes the step of:
sensing temperature at the bi-metal junction, wherein the nano sized sensor
functions as a thermocouple.

Claim 16(New). The method of claim 15, further comprising the step of:
providing the thermocouple with a sensitivity of greater than approximately
0.04mV/degree Centigrade.

Claim 17(New). The method of claim 16, wherein the sensitivity providing step
includes: at least approximately 5.4mV/degree Centigrade.

Claim 18(New). The method of claim 1, wherein the first metal nano sized strip and the
second metal nano sized strip each include a diameter of approximately 50nm.

Claim 19(New). The method of claim 1, wherein the bi-metal sensing junction includes a
cross-sectional area of approximately $50 \times 50 \text{ nm}^2$.

Claim 20(New). A method of producing a nano sized sensor comprising the steps of:

(a) depositing a first metal nano sized strip on an electrical insulator substrate by
a FIB (Focused Ion Beam) deposition process;

(b) depositing a second metal nano sized strip on the same said substrate by said
FIB process in a ball shaped portion on said first metal nano sized strip, the second metal
nano sized strip being formed of a different metal material from the first nano sized strip;
and

(c) forming a bi-metal sensing junction from the ball shaped portion between the
first metal nano sized strip and the second metal nano sized strip.

Claim 21(New). The method of claim 20, wherein one of the first metal nano sized strip and the second nano metal sized strip is W(tungsten) and another of the first metal nano sized strip and the second nano sized strip is Pt(platinum).

Claim 22(New). The method of claim 20, wherein the forming step includes the step of:
sensing temperature at the bi-metal junction, wherein the nano sized sensor functions as a thermocouple.

Claim 23(New). The method of claim 22, further comprising the step of:
providing the thermocouple with a sensitivity of greater than approximately 0.04mV/degree Centigrade.

Claim 24(New). The method of claim 23, wherein the sensitivity providing step includes: at least approximately 5.4mV/degree Centigrade.

Claim 25(New). The method of claim 20, wherein the first metal nano sized strip and the second metal nano sized strip each include a diameter of approximately 50nm.

Claim 26(New). The method of claim 20, wherein the bi-metal sensing junction includes a cross-sectional area of approximately 50 X 50 nm².

Claim 27(New). A method of producing a nano sized sensor comprising the steps of:

(a) depositing a first metal nano sized strip on an electrical insulator substrate by a FIB (Focused Ion Beam) deposition process;

(b) depositing a second metal nano sized strip on the same said substrate by said FIB process in a point shaped configuration portion on said first metal nano sized strip, the second metal nano sized strip being formed of a different metal material from the first nano sized strip; and

(c) forming a bi-metal sensing junction from the point shaped configuration portion between the first metal nano sized strip and the second metal nano sized strip.

Claim 28(New). The method of claim 28, wherein one of the first metal nano sized strip and the second nano metal sized strip is W(tungsten) and another of the first metal nano sized strip and the second nano sized strip is Pt(platinum).

Claim 29(New). The method of claim 28, wherein the forming step includes the step of:
sensing temperature at the bi-metal junction, wherein the nano sized sensor functions as a thermocouple.

Claim 30(New). The method of claim 29, further comprising the step of:
providing the thermocouple with a sensitivity of greater than approximately 0.04mV/degree Centigrade.

Claim 31(New). The method of claim 30, wherein the sensitivity providing step includes: at least approximately 5.4mV/degree Centigrade.

Claim 32(New). The method of claim 27, wherein the first metal nano sized strip and the second metal nano sized strip each include a diameter of approximately 50nm.

Claim 33(New). The method of claim 27, wherein the bi-metal sensing junction includes a cross-sectional area of approximately 50 X 50 nm².